REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated December 21, 2006 has been received and its contents carefully reviewed. Applicants appreciate the indication by the Examiner that claims 5, 6, 10, 12, 15, and 17 recite allowable subject matter.

Claims 1-4, 7-9 11, 13, 14, and 16 are rejected by the Examiner. Claims 5, 6, 10, 12, 15, and 17 are objected to by the Examiner. Claims 1-17 are currently pending. Reexamination and reconsideration of the pending claims is respectfully requested.

In the Office Action, claims 1-3 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,097,362 to Kim (hereinafter "Kim") in view of U.S. Patent No. 7,095,393 to Lee (hereinafter "Lee"). Claims 4, 7-9, 11, 14, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Lee, and further in view of U.S. Patent No. 6,335,721 to Jeong (hereinafter "Jeong").

The rejection of claims 1-3 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Lee is respectfully traversed and reconsideration is requested.

Independent claim 1 recites a driving apparatus for a liquid crystal display device, having a combination of features including "wherein the digital-to-analog converter array receives a plurality of pixel voltage signal levels inputted from an external source and generates the pixel voltage signals using the pixel voltage signal level with a voltage at least one-step higher in absolute value than the original pixel voltage signal level in correspondence to at least one pixel data."

In the Office Action, the Examiner acknowledges that Kim does not disclose "using the pixel voltage signal level with a voltage at least one-step higher in absolute value than the original pixel voltage signal level in correspondence to at least one pixel data" as recited in claim 1. The Examiner cites Lee as allegedly curing this deficiency in Kim. Applicants respectfully disagree with the Examiner's conclusion that Lee cures the deficiencies in the teachings of Kim.

The Examiner cites Lee as teaching "using the pixel voltage signal level with a voltage at least one-step higher in absolute value than the original pixel voltage signal level in

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correspondence to at least one pixel data" citing in particular FIG. 7 of Lee. As shown in FIG. 7, Lee discloses a data gray signal modifier that receives pixel data and outputs modified digital pixel data to be supplied to the data driver. As the data gray scale modifier of Lee completely precedes the data driver and outputs digital data, the data scale modifier cannot correspond to the "the digital-to-analog converter array" as recited in claim 1. Further, any digital-to-analog converter in the data driver of Lee does not "receive[s] a plurality of pixel voltage signal levels inputted from an external source and generate[s] the pixel voltage signals using the pixel voltage signal level with a voltage at least one-step higher in absolute value than the original pixel voltage signal level in correspondence to at least one pixel data" as recited in claim 1 at least because the signals in Lee are modified prior to the data driver. For at least these reasons, Applicants submit that Lee does not cure the deficiencies in the teachings of Kim and that Kim and Lee, analyzed singly or in combination do not teach or suggest the combined features of claim 1. Accordingly, Applicants submit that claim 1, and claims 2 and 3 depending from claim 1 are each allowable over Kim and Lee.

Claim 13 recites a method for driving a liquid crystal display device having a combination of features including "performing time-division on pixel data inputted from an external source to output time-divided pixel data; converting the time-divided pixel data into pixel voltage signals; and performing time-division on data lines to supply the converted pixel voltage signals thereto, wherein the step of converting the pixel data into the pixel voltage signals includes: generating the pixel voltage signals using a pixel voltage signal level having a voltage at least one step higher in absolute value than an original pixel voltage signal level in correspondence to at least one pixel data."

In rejecting claim 13, the Examiner correctly acknowledges that Kim does not disclose "generating the pixel voltage signals using a pixel voltage signal level having a voltage at least one step higher in absolute value than an original pixel voltage signal level in correspondence to at least one pixel data." The Examiner relies on Lee to cure this deficiency in the teaching of Kim citing in particular the data modifier of FIG. 7 of Lee. Applicants respectfully disagree that Lee cures the above-identified deficiency in the teaching of Kim. As Applicants have discussed above regarding claim 1, Lee teaches a data modifier supplying modified data to the data driver. Applicants submit that no portion of the circuit described in Lee "converting the time-divided pixel data into pixel voltage signals; and performing time-division on data lines to supply the

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converted pixel voltage signals thereto, wherein the step of converting the pixel data into the pixel voltage signals includes: generating the pixel voltage signals using a pixel voltage signal level having a voltage at least one step higher in absolute value than an original pixel voltage signal level in correspondence to at least one pixel data." For at least this reason, Applicants submit that Lee does not cure the deficiencies in the teachings of Kim and that Kim and Lee, analyzed singly or in combination do not teach or suggest the combined features of claim 13. Accordingly, Applicants submit that claim 13 is allowable over Kim and Lee.

The rejection of claims 4, 7-9, 11, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Lee, and further in view of Jeong is respectfully traversed and reconsideration is requested.

Applicants note that claims 4, 7-9 and 11 each depend from claim 1 and each includes by references all of the elements of claim 1.

Applicants respectfully submit that Jeong does not cure the deficiencies of Kim and Lee with respect to the combined features of claim 1 as discussed above. Applicants submit that Kim, Jeong, and Lee, analyzed singly or in any combination do not teach or suggest the combined features of claim 1. Accordingly, Applicants respectfully submit that claim 1 and claims 4, 7-9, and 11 depending from claim 1, are each allowable over Kim, Lee, and Jeong.

Applicants note that claims 14 and 16 each depend from claim 13 and each includes by references all of the elements of claim 13.

As discussed above, Kim and Lee do not teach or suggest the combination of features recited in claim 13. The Examiner cites Jeong to allegedly cure deficiencies in the teachings with respect to elements "one horizontal period is divided into two half horizontal periods and the pixel data are time-divided to be supplied." Applicants do not reach the Examiner's conclusion regarding the teachings of Jeong. Applicants submit that Jeong does not cure the deficiencies in the teachings of Kim and Lee regarding the combination of features recited in Kim and Lee and identified above. Applicants submit that Kim, Lee, and Jeong, analyzed singly or in any combination do not teach the combined features recited in claim 13. Accordingly, Applicants submit that claim 13, and claims 14 and 16 depending from claim 13, are each allowable over Kim, Lee, and Jeong.

Claims 5, 6, 10, 12, 15, and 17 are objected to as depending from a rejected base claim but being otherwise allowable. Applicants note that claims 5, 6, 10, 12, 15, and 17 each depend respectively from one of claims 1 and 13. Applicants submit that claims 1 and 13 are allowable at least for the reasons given above, and that claims 5, 6, 10, 12, 15, and 17 each depends from an allowable base claim. Accordingly, Applicants request that the objection to the claims be withdrawn.

Applicants believe the foregoing the application is in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Dated: March 20, 2007   Respectfully submitted,

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